

Den Site Seitz

→ 2014 - operated 1 1/2 years  
High Btu plant - Scrubs out  
impurities in LFG + get pipeline  
NG - Ameren uses +

Kola

all Landfill gas goes here

2700 scfm from South  
Milan - North Milan

Oct 2013 no gas generated  
Engen plant converted to NG  
next door to ran this  
hi Btu gas plant

Have two - but only use treatment  
one -

50-60 in vacuum pull LFG -

After cooler to get <sup>800-83F</sup> ~~200F~~  
dehydrier steel - ~~st~~ to get

maschine air (just about  
 $32^{\circ}\text{F}$ ) ( $34^{\circ}\text{F}$ )

using glycol -  
runs to sulfur treat media  
towers - activated aluminum  
medium - need to degrease about  
once 8 months. Have 2 towers  
# 100 100 ppm S in by volume  
after - 0 ppm  
2-3 ppm out of 1st tower &  
run through second & degrease  
media in the one

2 compressors - parallel. 192 psi?

after cooler - 78°F

3 dry filters removed (large  
particles & moisture - 2nd moisture  
removes VOCs - activated carbon  
towers (final scrubbers))  
2 more filters

dry, clean - removes VOCs  
before membranes (filter)

2 stages to get CO<sub>2</sub>  
1st stage - most CO<sub>2</sub> - then  
oxidizer to  
destruction  
1530°F  
set at 1640°

2nd stage - finds  
CO<sub>2</sub> removal

3rd methan

after CO<sub>2</sub> - another skid - ARI adsorption  
Research Inc.

Nitrogen / Oxygen removal -  
4 towers to trap methane  
over activated aluminum

add methane to push out N<sub>2</sub>/O<sub>2</sub>  
to vacuum pumps - suck out good gas to  
membrane on roof - buffer bags (fuel blocks)  
50,000 gal of gas

some to Henry product tank - excess  
to compressor from 10 to 300 psi to  
pipelined

> 950 BTU is spec. of NG  
5 lb/Million cubic feet of water

GC in plant & America has one  
Am close off valve if doesn't meet sp.

Utility store is for backup  
enclosed doesn't really work  
in the beg. had equipment

Jan 2015 - runs pretty consistent  
media

planned maintenance  
before startup issues. Valve froze

2 weeks ago - switched to NG on  
orange plant

thine oxidizer - test done 5 weeks ago  
nothing coming out

Milan models are recently done.  
did second one for N6 stage out  
2 FG was frozen up Septem - now  
using N6. Day of operation pays  
for gas for month.

Oxidation catalyst for CO will do  
another test.

Open flare 330? - ~~use~~  
enclose 1400 needs more  
gas to electric - on N6  
thermal oxidizer -

passive flares at N. Milan  
3 solar Fall 2013 - not 5 years  
grated

constantly speaks to  
units  
greater to

740 - 56%

830

have a lot of excess  
gas capacity

Waste - ~~dear~~ & new (S)

14 acres - existing (P)

119 - footprint (P)  
110 40 acres  
constructed

highest tonnage  
was 1 M tons of  
Refuse  
5cfm - 3800 highest

3000 - flares

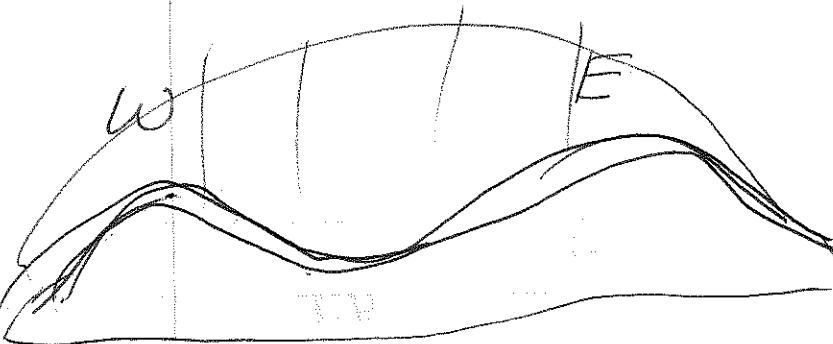
800 - Gasto  
electric

800,000 tons now  
5cfm - 2600 5cfm  
was 2800 5cfm

Milan - 1960's - lined over type  
~~old~~ vertical wells  
old section has soils  
only shown way  
3 feet clay (60ml), 1 foot leachet collector  
filled over top ground water treatment

to W SW  
to River

Laddered  
duct  
leads down to  
load pot  
720ml tons  
trash -



MSW - construction debris  
regulated  
~~pre~~ PWSI drums

MSW dome, construction debris -  
50%

particle board:

H/S - 100-120 bags  
100 wells - addy & replacing some all active

NMOC - > 50 bear forever did Tier 1

gas to electric since early 1990's  
& flare since early 1990's  
no odor complaints  
monthly gas - 25% have T variance

200 foot landfill thickness should be over 140  
oxygen variances - no - credit in well  
tuny well

20 foot down perforations - seal

BRV plant want to keep N down - so want to  
monitor wells 2x month to tune more

UNF-flame > flame on open  
& thermocouple detection flame  
LIVE is back up.

surface monitoring  
quarterly  
side slopes not included  
top slopes done only

~~80/70~~ 80/70 acres slightly to  
2/3 of lower mg is fine cover

fine cover  
6 in grady layer (soil)  
+ 1 foot clay over grade  
40 ml texture Hape  
3 foot protective soil  
+ vegetation

mice: very top - hasn't found any exceedances  
surveillance walk it - small area

slope → base on reg - safety. ~~WTF~~  
active areas & roads

most has 1:1 - that's design grade  
all of fl. in design plan

50% stop on top  
2-3 years ~~had~~ to closed.?  
original design plan - added 30 - last several years

well density -  
77 min well #

some re-drills -

some had older type of  
~~holes~~ rock wells

water in some wells - test?

\* depth to bottom - they want to  
west side - where had old stone columns,  
they put a traditional well

Well flow - mandatory induced

Well flow surface plate

Calc. based on diff. pressure

\* this year 2016 - flow of ind. wells

Cover integrity program - monthly inspection  
dams intermediate  
cover



~~most~~ most erosion on capped areas  
flows this year  
well head data  
surface monitoring reports  
plot map of where wells  
diagram of fine cover location.

taer  
N. Milan - new cell

photos

WTF ① active area  
construction & cell  
② perimeter gas probe  
perimeter gas probes - monitored  
ambient air mon. stations ~~not~~ due  
to area  
very active

③ CP-OB-new  
in active area

4/0-

peak elevation - 630  
20-30 feet footprint  
20-30 acres top - 30 acres

1 foot soil - intermediate

④ photo - you left -  
bad green R.

6-8 - top area  
grass  
A-fine area  
cover

there are  
Wells on slopes that are not  
Mantled.

10 - fine cover area - several years  
ago

Gas  
plant

Oxidation catalyst

runs one  
catalyst  
at time  
vacuum  
55°  
to 5-7 psi  
several  
coolers  
draw  
manoe

13 1st 180 psi  
Stage  
Compress

Mr.  
Gord

14, 15 -

16 - CO<sub>2</sub> removal

2<sup>o</sup> vacuum pump

17 - API name of gas  
18 - bubble bag

by compressors  
ago

6 heavy  
product tank  
outside

19 - tanks - carbon tanks  
activated carbon  
drage tubes

19 - tanks - carbon tanks

activated carbon  
drage tubes

20 - sulfur treat  
in distance

21 - bag cover - white

Add mercaptan at area  
Station on  
site

22

23 - TO

1605 - 1627°F 5/25 1.08pm  
combustion air fan at  
not run near  
but can't